

2396 Evergreen Drive Development

Traffic Impact Analysis

Addendum to the Draft Report

Prepared for

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1.0 INTRODUCTION

This addendum supplements analysis provided in the 2396 Evergreen Drive Traffic Impact Analysis (DKS Associates, June 2006, herein referred to as the TIA), and investigates the potential traffic impacts that may occur if a second access driveway were available to the project occupants. The TIA evaluated traffic and transportation issues related to a proposed 70-unit residential development with one entrance/exit point onto Evergreen Drive. (The driveway is located at the intersection of Evergreen Drive and Maywood Drive.) This Addendum to the TIA summarizes additional analysis conducted for an alternative project scenario that incorporates the project description used in the TIA with the addition of a second driveway onto Albright Way in the City of South San Francisco. As part of the additional analysis, the intersection of Westborough Boulevard and Gellert Boulevard was added to the analysis, using the same methodologies assumed in the TIA. A comparison of the peak hour operating conditions at the project driveways (as noted, this addendum assumes two project driveways) is also included in this additional analysis.

This Addendum also considers a potential roadway connection between Sherwood Drive in San Bruno and Albright Way in South San Francisco that would be located immediately adjacent to the second driveway. **Figure A-1** illustrates the proposed site plan with the potential access driveways and location of the new roadway connector. As a result of the potential second driveway, and a potential new roadway segment, this Addendum includes estimates of cut-through traffic using the new streets on-site that would connect the driveways (without the new roadway connection), and on the new roadway connection. Estimates of potential cut-through traffic and changes in traffic patterns are based on existing peak hour traffic volumes on Oakmont Drive, in the vicinity of the project site, and at the intersection of Oakmont Drive/Westborough Boulevard.

2.0 PROJECT ALTERNATIVE OPERATING CONDITIONS

The project alternative is anticipated to result in a shift in travel patterns for existing vehicles traveling to and from the north via Interstate 280 (I-280). The TIA assumes that project-related traffic that travels to and from the north via I-280 would either utilize Oakmont Drive to Westborough Drive, or Valleywood Drive to Avalon Drive, to Junipero Serra Boulevard. By providing direct access to the project site via Albright Way in South San Francisco, project traffic from I-280 (north of Westborough Boulevard) would utilize Westborough Boulevard, Gellert Boulevard, and Shannon Drive instead of routes on Oakmont Drive to Westborough Boulevard, or Avalon Drive to Junipero Serra Boulevard.

2.1 *Existing and Background Conditions*

Existing peak hour turning movement counts for the intersection of Westborough Boulevard and Gellert Boulevard were obtained from the San Bruno Treetops Traffic Impact Study (Korve Engineering, April 2005). Existing traffic volumes at the intersections of Evergreen

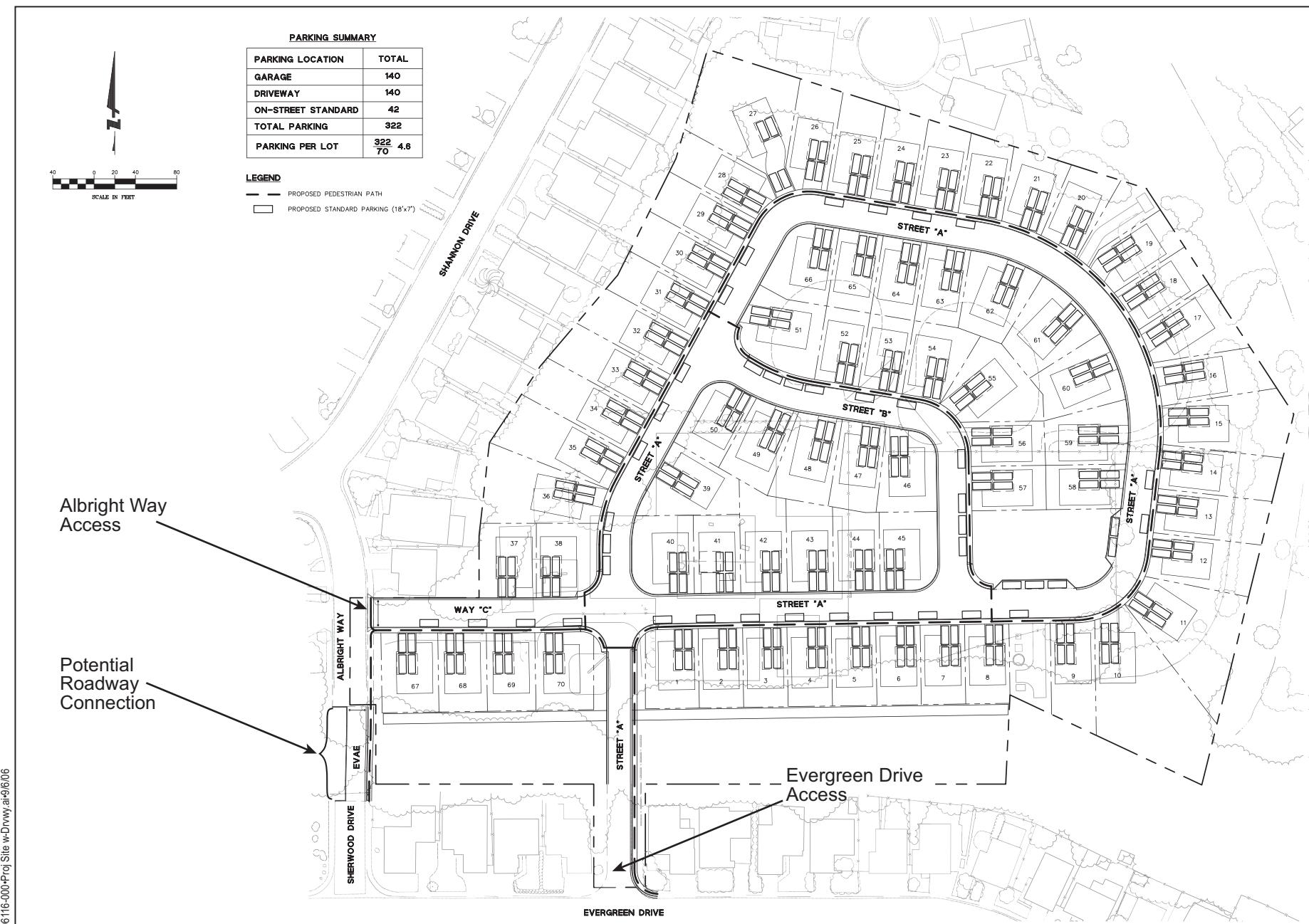


Figure A-1
Project Site Plan with Alternate Driveway and Roadway Connection

Drive/Maywood Drive and Shannon Drive/Albright way were estimated by sample traffic counts collected in August, 2006. **Figure A-2** illustrates the Existing Conditions Peak Hour Traffic Volumes at the three intersections analyzed as part of this Addendum.

Background traffic was added following methodologies consistent with the 2396 Evergreen Drive TIA. As described in the 2396 Evergreen Drive TIA, net-new traffic volumes from three approved developments within the City of San Bruno were added to the existing traffic volumes at each of the study intersections. In addition, the TIA assumed that the project site would potentially be re-occupied by the previous day care use under the Background Conditions. As a conservative measure, traffic volumes at the intersection of Westborough Boulevard and Gellert Boulevard were increased by an additional 10 percent to account for potential background growth in the City of South San Francisco. To estimate peak hour operating conditions at the two project driveways, sample traffic counts were collected at the intersections of Evergreen Drive/Maywood Drive and Shannon Drive/Albright Way in August 2006. **Figure A-3** illustrates the Background Conditions Peak Hour Traffic Volumes at the three study intersections.

Table A-1 summarizes the Existing and Background Conditions at the three additional study intersections including the intersection of Westborough Boulevard and Gellert Boulevard. Also shown in the table are estimated operating conditions for the unsignalized intersections directly adjacent to the proposed project driveways.

The intersection of Westborough Boulevard and Gellert Boulevard operate at LOS C and D during the AM and PM peak hours respectively under the Existing Conditions, and would operate at LOS D during both the AM and PM peak hours under the Background Conditions. The two intersections adjacent to the proposed driveways would operate at LOS A with less than ten seconds of average delay for both the Existing and Background Conditions.

Table A-1
Existing and Background Conditions Levels of Service

Study Intersection	Existing Conditions				Background Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay ^a	LOS ^b	Delay ^a	LOS ^b	Delay ^a	LOS ^b	Delay ^a	LOS ^b
Westborough Boulevard / Gellert Boulevard	34.9	C	38.8	D	36.2	D	42.1	D
Evergreen Drive / Maywood Drive ^c	6.8	A	6.8	A	7.1	A	7.1	A
Shannon Drive / Albright Way ^d	8.8	A	8.6	A	8.8	A	8.6	A

- Notes:
- a. Delay = average for signalized intersections and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
 - b. LOS = Level of service, represents average for signalized intersections and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
 - c. Unsignalized all-way stop controlled intersection.
 - d. Unsignalized side street stop controlled intersection.

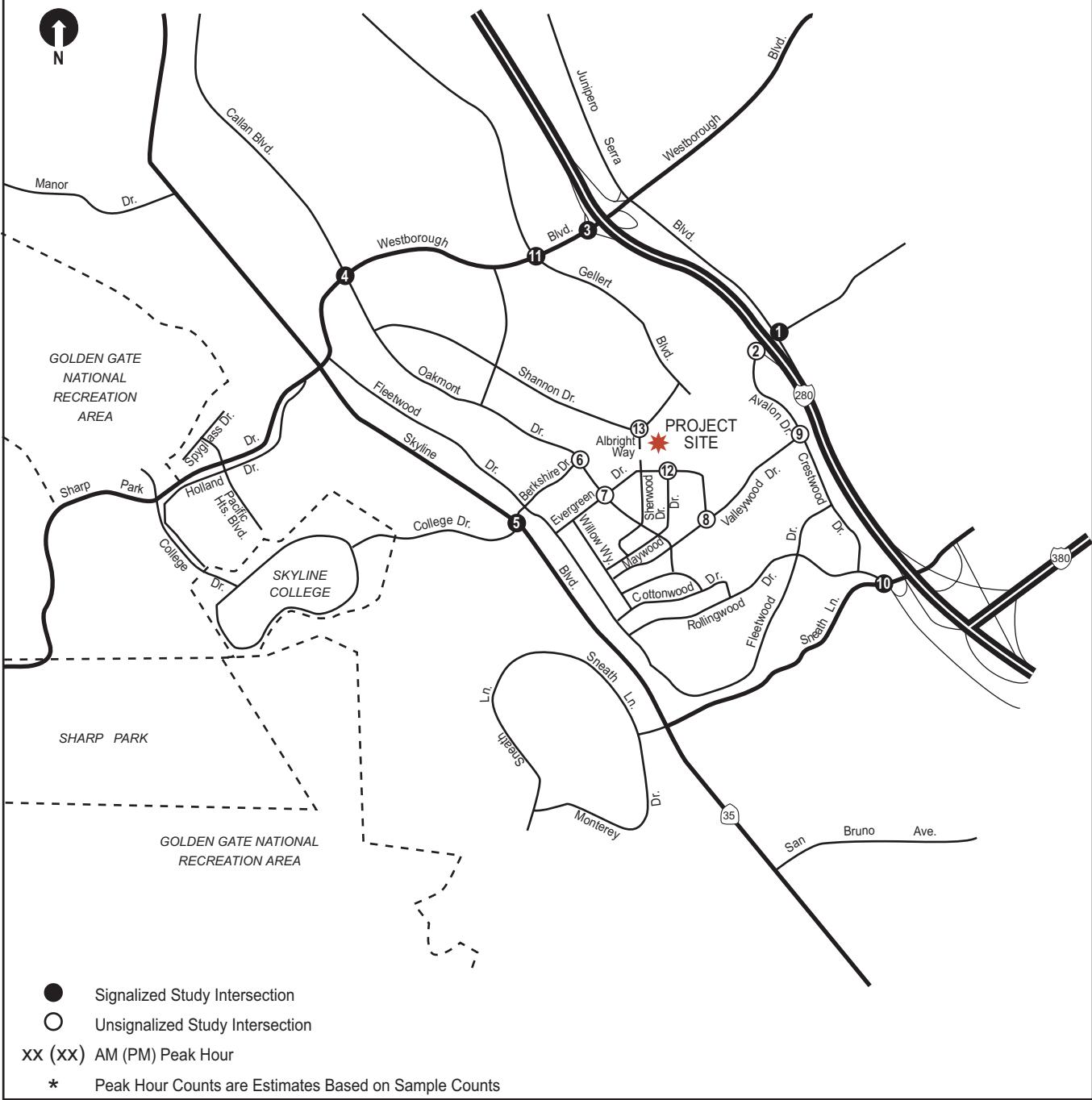
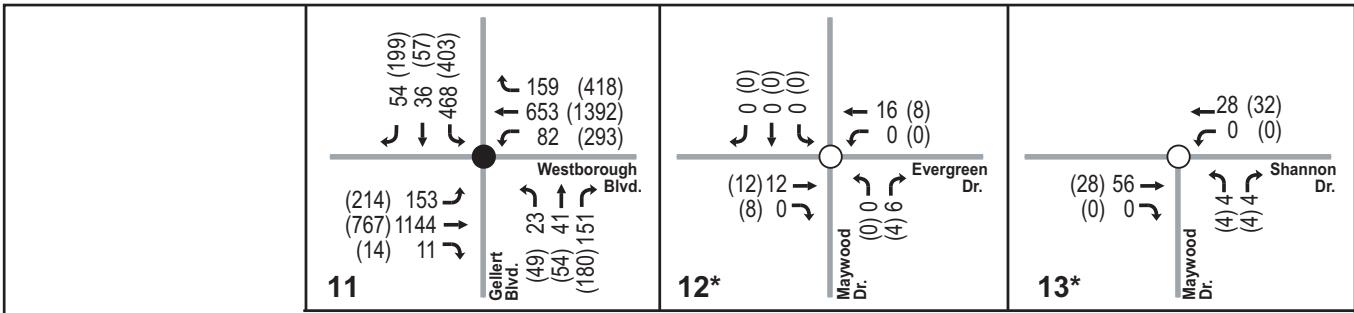


Figure A-2
Existing Conditions
Peak Hour Traffic Volumes

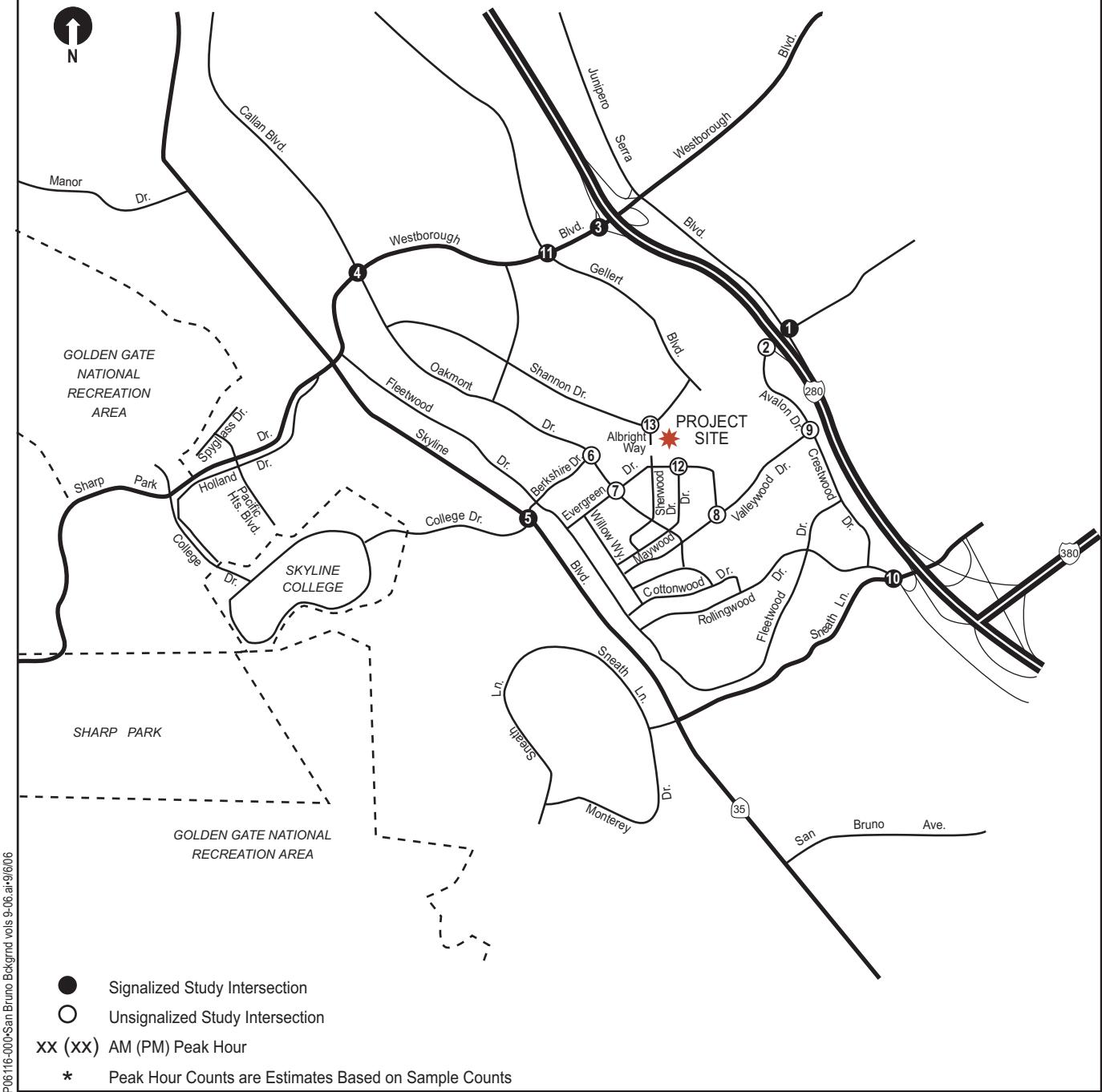
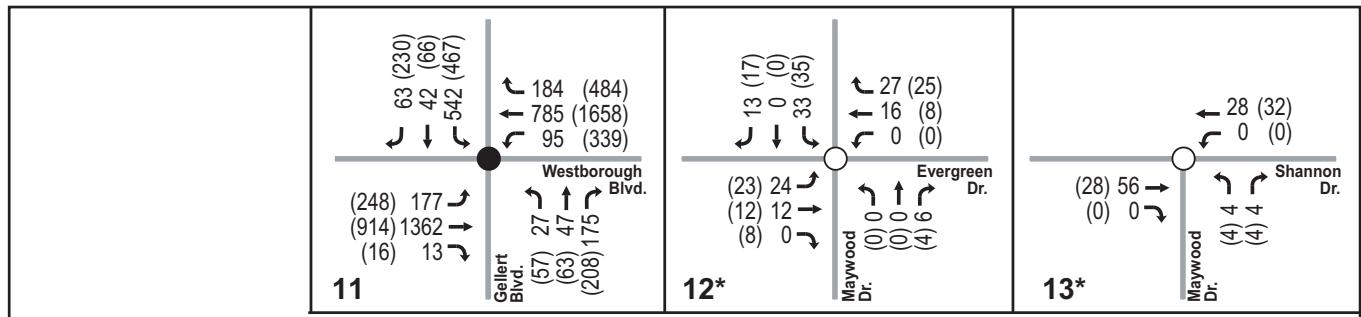


Figure A-3
Background Conditions
Peak Hour Traffic Volumes

2.2 Background plus Project Alternative Conditions

New project-related trips were added to the study intersection with revised travel paths utilizing the second access driveway. **Figure A-4** illustrates the Background plus Project Conditions Peak Hour Traffic Volumes at the three additional study intersections. With a second access driveway, approximately 19 of the 52 total AM peak hour project trips would use the Albright Way access point (14 out, 5 in), and 33 total trips would exit via the originally proposed access at Evergreen Drive. During the PM peak hour, approximately 27 of the 71 total project trips would use the second driveway (17 in, 10 out) to Albright Way, and 44 total trips would enter/exit via Evergreen Drive.

The AM and PM peak hour operating conditions for the Background and Background plus Project scenarios are presented in **Table A-2**. As shown, the addition of project-related trips at the intersection of Westborough Boulevard and Gellert Boulevard would not result in any potentially significant impacts. The intersection would continue to operate at LOS D during both the AM and PM peak hours, which is considered acceptable. The intersections of Evergreen Drive/Maywood Drive and Shannon Drive/Albright would continue to operate at LOS A with the addition of project related traffic. With two driveways, a slight reduction in average delay at the intersection of Evergreen Drive and Maywood Drive would occur due to the assumption of the day care center potentially being occupied under the Background Scenario. A second driveway would result in reduced traffic delays at this intersection. In addition, by adding traffic to the right-turn movement from Albright Way to Shannon Drive, the average approach delay on Albright Way would decrease.

Table A-2
Background and Background plus Project Conditions Levels of Service

Study Intersection	Background Conditions				Background plus Project Conditions			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
	Delay ^a	LOS ^b	Delay ^a	LOS ^b	Delay ^a	LOS ^b	Delay ^a	LOS ^b
Westborough Boulevard / Gellert Boulevard	36.2	D	42.1	D	36.6	D	42.8	D
Evergreen Drive / Maywood Drive ^c	7.1	A	7.1	A	7.0	A	6.8	A
Shannon Drive / Albright Way ^d	8.8	A	8.6	A	8.7	A	8.6	A

Notes:

- a. Delay = average for signalized intersections and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
- b. LOS = Level of service, represents average for signalized intersections and 4-way stop controlled intersections, and worst approach for 2-way stop controlled intersections.
- c. Unsignalized all-way stop controlled intersection.
- d. Unsignalized side street stop controlled intersection.

Due to the shift in project traffic to the second driveway, slightly less project related traffic would travel through the study intersections of Westborough Boulevard/Oakmont Drive, Avalon Drive/Valleywood Drive, and Avalon Drive/I-280 Ramps. The slight reduction would be minimal, and the conclusions summarized in the TIA would not change.

No potentially significant peak hour impacts are anticipated as a result of the proposed project with two driveways.

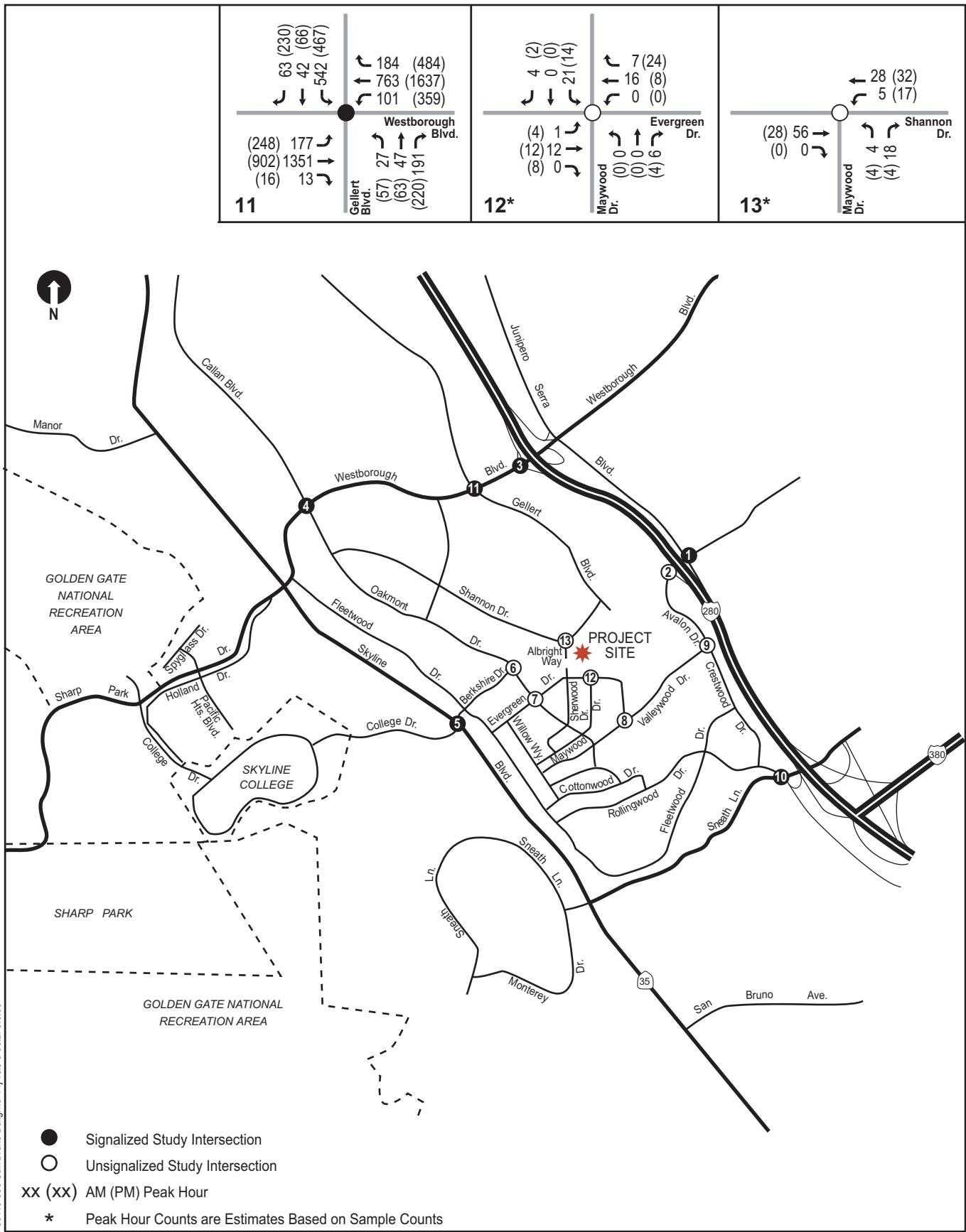


Figure A-4
Background Plus Project Conditions
Peak Hour Traffic Volumes

3.0 POTENTIAL CUT-THROUGH TRAFFIC

One area of concern with a second access to Albright Way in the City of South San Francisco is the opportunity for potential cut-through traffic to occur through the project site.

3.1 Cut-Through traffic on the Project Site

With two access points, one at Albright Way and one at Evergreen Drive, existing traffic from the adjacent neighborhoods may cut-through the newly created streets within the project site. It would be anticipated that any cut-through traffic would be related to the residential units immediately adjacent to the proposed project in the vicinity of Shannon Drive and Evergreen Drive. Traffic cutting through the project site would travel on narrower streets, through multiple stop-controlled intersections within the project site, and on relatively steep grades on Evergreen Drive. The estimated benefit of reduced travel time would be minimal.

Based on observations and sample counts collected in August, 2006 (See Figure A-2), existing peak hour traffic on Evergreen Drive and Shannon Drive is relatively low, and would be limited to trips with origins and destinations in the immediate area around Evergreen Drive. Based on the existing turning movement counts at the intersection of Oakmont Drive and Evergreen Drive, if half of the existing traffic that currently turn from Evergreen to Oakmont, and vice versa, were to cut-through the project site, there would be approximately 11 cut through vehicles (two-way) during the AM peak hour, and eight cut-through vehicles during the PM peak hour. Under the worse case scenario, if all the traffic to and from Evergreen Drive were to cut-through the project site, there would be approximately 21 AM and 15 PM peak hour cut-through trips.

In an effort to further deter cut-through traffic, the proposed project may include several traffic calming features to further discourage outside traffic. Such traffic calming measures include:

- Stop control at intersections,
- Speed humps,
- Roadway necking, and
- Signage indicating private property or no through traffic.

One additional method of preventing cut-through traffic would be a direct public roadway connection between Albright Way and Sherwood Drive (as described below).

3.2 Connector between Albright Way and Sherwood Drive

A new roadway connector between Albright Way and Sherwood Drive would prevent cut-through traffic within the project site that could occur if two access points to the site are constructed. A new roadway connector would likely result in a shift of some existing traffic

from Oakmont Drive, resulting in a change of existing patterns on Shannon Drive, Sherwood Drive, and Evergreen Drive. The potential roadway connector would provide an alternate route parallel to Oakmont Drive, which is the primary connector between the cities of San Bruno and South San Francisco for the nearby residential uses.

To estimate the amount of traffic that would shift, peak hour traffic volumes and patterns at the intersections of Oakmont Drive/Berkshire Drive and Westborough Boulevard/Oakmont Drive were analyzed. Based on the turning movement patterns at the intersection of Westborough Boulevard and Oakmont Drive, approximately 56 percent of the southbound traffic on Oakmont Drive would come from Westborough Boulevard, east of Oakmont. Approximately 32 percent of the northbound traffic on Oakmont Drive turns east onto Westborough Boulevard.

As a conservative estimate, these percentages were applied to the northbound and southbound through traffic at the intersection of Oakmont Drive and Berkshire Drive (assumes no trip ends on Oakmont Drive). If 50 percent of the current traffic were to shift to the new roadway connector, then approximately 21 and 19 vehicles would travel northbound from San Bruno to South San Francisco during the AM and PM peak hours respectively. Approximately 12 and 16 vehicles would travel southbound from South San Francisco to San Bruno during the AM and PM peak hours respectively. By assuming a 10 percent peak hour to daily traffic factor, approximately 350 vehicles (two-way traffic) would travel on the new roadway connector daily.

Under the worst possible case scenario, if all traffic that currently use Oakmont to and from Westborough Boulevard (east of Oakmont) were to use the new roadway connector, there would be approximately 66 and 70 vehicles (two-way traffic) on the connector during the AM and PM peak hours respectively, and approximately 24 and 32 vehicles in the southbound direction during the AM and PM peak hours, respectively.

It should be noted that if two driveways to and from the project site are created, project traffic would not be expected to travel on, or benefit from a roadway connector between Sherwood Drive and Albright Way. The key benefits would be an additional route between the Cities of South San Francisco and San Bruno for existing traffic, and the elimination of potential cut-through traffic within the project site between the two access points. However, the potential cut-through (without a roadway connection to Sherwood Drive) could potentially be eliminated with less expensive traffic calming features as described previously.

4.0 CONCLUSION

The proposed project includes 70 single-family residential units that would travel through one driveway located at the north approach to the intersection of Evergreen Drive and Maywood Drive. As part of the proposed project, an additional access driveway to Albright Way in the City of South San Francisco would be closed with a locked gate, and would only be accessible by emergency vehicles. This Addendum investigates the potential traffic impacts that would occur if the second access driveway were available to the project occupants. As part of the additional analysis, the intersection of Westborough Boulevard and

Gellert Boulevard was analyzed for peak hour traffic impacts, and it was found that the proposed project would not trigger any potentially significant impacts on intersection levels of service.

A second driveway may attract cut-through traffic by providing an alternative route to Oakmont Drive, the primary residential collector street between the cities of San Bruno and South San Francisco. Due to anticipated traffic control and narrow roadway widths within the project site, and the existing grade on the connection between Evergreen Drive and the project site, cut-through traffic is anticipated to be minimal. With implementation of typical traffic calming features, potential cut-through traffic could be negligible.

A new roadway connection between Sherwood Drive in San Bruno, and Albright Way in South San Francisco would provide an alternative route for existing traffic that currently travels on Oakmont Drive. It is anticipated that between 30 and 70 vehicles (two-way traffic) would travel on the new roadway connection during the peak hours. With two access driveways, vehicle trips related to the proposed project would not utilize a new roadway connection, and the roadway connector would primarily be utilized by existing traffic in the area.

APPENDICES

2396 Evergreen Drive Development TIA
Level of Service Calculations

**Existing Conditions
AM Peak Hour**

San Bruno SummerHill Homes TIA
Existing AM Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #11 Westborough / Gellert

Cycle (sec): 120 Critical Vol./Cap. (X): 0.514

Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 34.9

Optimal Cycle: 82 Level Of Service: C

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|-----|-----|-----|-----|

Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 10 10 10 10 10 10 10 40 40 10 40 40

Lanes: 1 0 1 0 1 1 1 0 1 1 0 2 1 0 1 0 3 0 1

-----|-----|-----|-----|-----|-----|-----|-----|

Volume Module:

Base Vol: 23 41 151 468 36 54 153 1144 11 82 653 159

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 23 41 151 468 36 54 153 1144 11 82 653 159

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 24 43 159 493 38 57 161 1204 12 86 687 167

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 24 43 159 493 38 57 161 1204 12 86 687 167

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 24 43 159 493 38 57 161 1204 12 86 687 167

-----|-----|-----|-----|-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.95 1.00 0.85 0.91 0.91 0.85 0.95 0.91 0.91 0.95 0.91 0.85

Lanes: 1.00 1.00 1.00 2.00 1.00 1.00 1.00 2.97 0.03 1.00 3.00 1.00

Final Sat.: 1805 1900 1615 3451 1726 1615 1805 5132 49 1805 5187 1615

-----|-----|-----|-----|-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.01 0.02 0.10 0.14 0.02 0.04 0.09 0.23 0.23 0.05 0.13 0.10

Crit Moves: **** * **** * **** * ****

Green/Cycle: 0.17 0.17 0.17 0.24 0.24 0.24 0.15 0.39 0.39 0.10 0.33 0.33

Volume/Cap: 0.08 0.13 0.58 0.58 0.09 0.14 0.58 0.60 0.60 0.49 0.40 0.31

Delay/Veh: 42.1 42.6 49.2 40.9 35.0 35.6 50.4 29.8 29.8 53.5 30.9 30.1

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 42.1 42.6 49.2 40.9 35.0 35.6 50.4 29.8 29.8 53.5 30.9 30.1

HCM2kAvg: 1 1 6 9 1 2 7 12 12 4 7 5

San Bruno SummerHill Homes TIA
Existing AM Peak Hour

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #12 Evergreen / Sherwood

Cycle (sec):	100	Critical Vol./Cap. (X):	0.017	
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	6.9	
Optimal Cycle:	0	Level Of Service:	A	
<hr/>				
Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Stop Sign	Stop Sign	Stop Sign	Stop Sign
Rights:	Include	Include	Include	Include
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0
Lanes:	0 0 0 0 1	0 0 1! 0 0	0 1 0 0 0	0 0 0 1 0
<hr/>				
Volume Module:				
Base Vol:	0 0 6	0 0 0	0 0 12	0 0 16 0
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
Initial Bse:	0 0 6	0 0 0	0 0 12	0 0 16 0
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
PHF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
PHF Volume:	0 0 6	0 0 0	0 0 12	0 0 16 0
Reduc Vol:	0 0 0	0 0 0	0 0 0	0 0 0 0
Reduced Vol:	0 0 6	0 0 0	0 0 12	0 0 16 0
PCE Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
MLF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
Final Vol.:	0 0 6	0 0 0	0 0 12	0 0 16 0
<hr/>				
Saturation Flow Module:				
Adjustment:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
Lanes:	0.00 0.00 1.00	0.00 1.00 0.00	1.00 0.00 0.00	0.00 1.00 0.00
Final Sat.:	0 0 1064	0 0 0	0 916 0	0 916 0
<hr/>				
Capacity Analysis Module:				
Vol/Sat:	xxxx xxxx 0.01	xxxx xxxx xxxx	xxxx xxxx 0.01	xxxx xxxx 0.02 xxxx
Crit Moves:	****	*****	*****	****
Delay/Veh:	0.0 0.0 6.4	0.0 0.0 0.0	0.0 0.0 7.0	0.0 0.0 7.0 0.0
Delay Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00 1.00
AdjDel/Veh:	0.0 0.0 6.4	0.0 0.0 0.0	0.0 0.0 7.0	0.0 0.0 7.0 0.0
LOS by Move:	* * A	* * * * *	* * A	* * A *
ApproachDel:	6.4	xxxxxx	7.0	7.0
Delay Adj:	1.00	xxxxxx	1.00	1.00
ApprAdjDel:	6.4	xxxxxx	7.0	7.0
LOS by Appr:	A	*	A	A

San Bruno SummerHill Homes TIA
Existing AM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #13 Shannon / Albright

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: A[8.8]

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
-----|-----|-----|-----|-----|-----|-----|-----|

Control: Yield Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 1! 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0
-----|-----|-----|-----|-----|-----|-----|-----|

Volume Module:

Base Vol:	4	0	4	0	0	0	0	56	0	0	28	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	0	4	0	0	0	0	56	0	0	28	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	4	0	4	0	0	0	0	56	0	0	28	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	4	0	4	0	0	0	0	56	0	0	28	0

Critical Gap Module:

Critical Gp:	6.4	xxxxx	6.2	xxxxxx	xxxx	xxxxxx	xxxxx	xxxxxx	xxxxx	xxxx	xxxxxx
FollowUpTim:	3.5	xxxxx	3.3	xxxxxx	xxxx	xxxxxx	xxxxx	xxxxxx	xxxxx	xxxx	xxxxxx

Capacity Module:

Cnflict Vol:	84	xxxxx	56	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxxx
Potent Cap.:	923	xxxxx	1016	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxxxx
Move Cap.:	923	xxxxx	1016	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxxxx
Volume/Cap:	0.00	xxxx	0.00	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxxxx

Level Of Service Module:

Queue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx				
Stopped Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx				
LOS by Move:	*	*	*	*	*	*	*	*	*	*	*				
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxxx	967	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx			
SharedQueue:	xxxxxx	0.0	xxxxxx	xxxxx	xxxx	xxxxxx	xxxxx	xxxx	xxxxxx	xxxxx	xxxx	xxxxxx			
Shrd StpDel:	xxxxxx	8.8	xxxxxx	xxxxx	xxxx	xxxxxx	xxxxx	xxxx	xxxxxx	xxxxx	xxxx	xxxxxx			
Shared LOS:	*	A	*	*	*	*	*	*	*	*	*	*			
ApproachDel:		8.8		xxxxxx			xxxxxx			xxxxxx					
ApproachLOS:		A		*			*			*					

**Existing Conditions
PM Peak Hour**

San Bruno SummerHill Homes TIA
Existing PM Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Base Volume Alternative)

Intersection #11 Westborough / Gellert

Cycle (sec):	120	Critical Vol./Cap. (X):	0.641
Loss Time (sec):	12 (Y+R = 4 sec)	Average Delay (sec/veh):	38.8
Optimal Cycle:	82	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase			Split Phase			Protected			Protected					
Rights:	Include			Include			Include			Include					
Min. Green:	10	10	10	10	10	10	10	40	40	10	40	40			
Lanes:	1	0	1	0	1	1	1	0	1	1	0	3	0	1	

Volume Module:												
Base Vol:	49	54	180	403	57	199	214	767	14	293	1392	418
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	49	54	180	403	57	199	214	767	14	293	1392	418
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95
PHF Volume:	52	57	189	424	60	209	225	807	15	308	1465	440
Reduc Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	52	57	189	424	60	209	225	807	15	308	1465	440
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	52	57	189	424	60	209	225	807	15	308	1465	440

Saturation Flow Module:												
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Adjustment:	0.95	1.00	0.85	0.91	0.91	0.85	0.95	0.91	0.91	0.95	0.91	0.85
Lanes:	1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.95	0.05	1.00	3.00	1.00
Final Sat.:	1805	1900	1615	3458	1729	1615	1805	5079	93	1805	5187	1615

Capacity Analysis Module:												
Vol/Sat:	0.03	0.03	0.12	0.12	0.03	0.13	0.12	0.16	0.16	0.17	0.28	0.27
Crit Moves:	****			****			****			****		
Green/Cycle:	0.16	0.16	0.16	0.18	0.18	0.18	0.15	0.33	0.33	0.23	0.41	0.41
Volume/Cap:	0.18	0.19	0.74	0.70	0.20	0.74	0.81	0.48	0.48	0.74	0.69	0.66
Delay/Veh:	44.0	44.0	58.8	49.6	42.3	56.6	65.3	31.9	31.9	49.5	30.0	31.1
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	44.0	44.0	58.8	49.6	42.3	56.6	65.3	31.9	31.9	49.5	30.0	31.1
HCM2kAvg:	2	2	8	9	2	9	11	8	8	12	15	14

San Bruno SummerHill Homes TIA
Existing PM Peak Hour

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Base Volume Alternative)

Intersection #12 Evergreen / Sherwood

Cycle (sec):	100	Critical Vol./Cap. (X):	0.020					
Loss Time (sec):	0 (Y+R = 4 sec)	Average Delay (sec/veh):	6.8					
Optimal Cycle:	0	Level Of Service:	A					
<hr/>								
Approach:	North Bound	South Bound	East Bound	West Bound				
Movement:	L - T - R	L - T - R	L - T - R	L - T - R				
Control:	Stop Sign	Stop Sign	Stop Sign	Stop Sign				
Rights:	Include	Include	Include	Include				
Min. Green:	0 0 0	0 0 0	0 0 0	0 0 0				
Lanes:	0 0 0 0 1	0 0 1! 0 0	0 0 1! 0 0	0 0 0 1 0				
<hr/>								
Volume Module:								
Base Vol:	0 0 4	0 0 0	0 0 12	8 0 8 0				
Growth Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00				
Initial Bse:	0 0 4	0 0 0	0 0 12	8 0 8 0				
User Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00				
PHF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00				
PHF Volume:	0 0 4	0 0 0	0 0 12	8 0 8 0				
Reduc Vol:	0 0 0	0 0 0	0 0 0	0 0 0 0				
Reduced Vol:	0 0 4	0 0 0	0 0 12	8 0 8 0				
PCE Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00				
MLF Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00				
Final Vol.:	0 0 4	0 0 0	0 0 12	8 0 8 0				
<hr/>								
Saturation Flow Module:								
Adjustment:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00				
Lanes:	0.00 0.00	1.00 0.00	0.00 0.00	0.60 0.40 0.00 1.00 0.00				
Final Sat.:	0 0 1065	0 0 0	0 0 587	391 0 916 0				
<hr/>								
Capacity Analysis Module:								
Vol/Sat:	xxxx xxxx 0.00	xxxx xxxx xxxx xxxx 0.02	0.02	xxxx 0.01 xxxx				
Crit Moves:	****	****		****				
Delay/Veh:	0.0 0.0	6.4 0.0 0.0	0.0 0.0 6.8	6.8 0.0 7.0 0.0				
Delay Adj:	1.00 1.00	1.00 1.00	1.00 1.00	1.00 1.00 1.00 1.00				
AdjDel/Veh:	0.0 0.0	6.4 0.0 0.0	0.0 0.0 6.8	6.8 0.0 7.0 0.0				
LOS by Move:	*	*	A	*	*	*	A	*
ApproachDel:	6.4	xxxxxx		6.8		7.0		
Delay Adj:	1.00	xxxxxx		1.00		1.00		
ApprAdjDel:	6.4	xxxxxx		6.8		7.0		
LOS by Appr:	A	*		A		A		

San Bruno SummerHill Homes TIA
Existing PM Peak Hour

Level Of Service Computation Report

2000 HCM Unsignalized Method (Base Volume Alternative)

Intersection #13 Shannon / Albright

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: A[8.6]

Approach: North Bound South Bound East Bound West Bound
Movement: L - T - R L - T - R L - T - R L - T - R
-----|-----|-----|-----|-----|-----|-----|-----|

Control: Yield Sign Stop Sign Uncontrolled Uncontrolled
Rights: Include Include Include Include
Lanes: 0 0 1! 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0
-----|-----|-----|-----|-----|-----|-----|-----|

Volume Module:

Base Vol:	4	0	4	0	0	0	0	28	0	0	32	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	4	0	4	0	0	0	0	28	0	0	32	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	4	0	4	0	0	0	0	28	0	0	32	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Final Vol.:	4	0	4	0	0	0	0	28	0	0	32	0

Critical Gap Module:

Critical Gp:	6.4	xxxxx	6.2	xxxxxx	xxxx	xxxxxx	xxxxx	xxxx	xxxxxx	xxxx	xxxxx	xxxx
FollowUpTim:	3.5	xxxxx	3.3	xxxxxx	xxxx	xxxxxx	xxxxx	xxxx	xxxxxx	xxxx	xxxxx	xxxx

Capacity Module:

Cnflict Vol:	60	xxxxx	28	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxx
Potent Cap.:	952	xxxxx	1053	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxx
Move Cap.:	952	xxxxx	1053	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxx
Volume/Cap:	0.00	xxxx	0.00	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxx

Level Of Service Module:

Queue:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxx			
Stopped Del:	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxx	xxxxxx	xxxxxx	xxxx	xxxxxx	xxxx			
LOS by Move:	*	*	*	*	*	*	*	*	*	*	*	*			
Movement:	LT	-	LTR	-	RT	LT	-	LTR	-	RT	LT	-	LTR	-	RT
Shared Cap.:	xxxxx	1000	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx			
SharedQueue:	xxxxxx	0.0	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx			
Shrd StpDel:	xxxxxx	8.6	xxxxxx	xxxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx	xxxx	xxxx	xxxxxx			
Shared LOS:	*	A	*	*	*	*	*	*	*	*	*	*			
ApproachDel:		8.6		xxxxxx			xxxxxx			xxxxxx					
ApproachLOS:		A		*			*			*					

Background Conditions AM Peak Hour

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Westborough / Gellert

Cycle (sec): 120 Critical Vol./Cap. (X): 0.572

Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 36.2

Optimal Cycle: 82 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|-----|-----|-----|-----|

Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 10 10 10 10 10 10 10 40 40 10 40 40

Lanes: 1 0 1 0 1 1 1 0 1 1 0 3 0 1

-----|-----|-----|-----|-----|-----|-----|-----|

Volume Module:

Base Vol: 23 41 151 468 36 54 153 1167 11 82 659 159

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 23 41 151 468 36 54 153 1167 11 82 659 159

Added Vol: 0 0 0 0 0 0 0 9 0 0 19 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 23 41 151 468 36 54 153 1176 11 82 678 159

User Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 27 47 175 542 42 63 177 1362 13 95 785 184

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 27 47 175 542 42 63 177 1362 13 95 785 184

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 27 47 175 542 42 63 177 1362 13 95 785 184

-----|-----|-----|-----|-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.95 1.00 0.85 0.91 0.91 0.85 0.95 0.91 0.91 0.95 0.91 0.85

Lanes: 1.00 1.00 1.00 2.00 1.00 1.00 1.00 2.97 0.03 1.00 3.00 1.00

Final Sat.: 1805 1900 1615 3451 1726 1615 1805 5134 48 1805 5187 1615

-----|-----|-----|-----|-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.01 0.02 0.11 0.16 0.02 0.04 0.10 0.27 0.27 0.05 0.15 0.11

Crit Moves: **** **** **** ****

Green/Cycle: 0.17 0.17 0.17 0.24 0.24 0.24 0.15 0.39 0.39 0.10 0.33 0.33

Volume/Cap: 0.09 0.15 0.64 0.64 0.10 0.16 0.64 0.68 0.68 0.54 0.45 0.34

Uniform Del: 42.1 42.5 46.5 40.6 35.1 35.6 47.7 30.5 30.5 51.6 31.4 30.1

IncremmtDel: 0.1 0.2 5.1 1.6 0.0 0.2 5.0 1.0 1.0 3.4 0.2 0.4

InitQueuDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Delay/Veh: 42.2 42.7 51.6 42.2 35.1 35.8 52.8 31.4 31.4 55.0 31.6 30.5

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 42.2 42.7 51.6 42.2 35.1 35.8 52.8 31.4 31.4 55.0 31.6 30.5

HCM2kAvg: 1 2 7 10 1 2 7 15 15 4 8 5

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 Evergreen / Sherwood

Cycle (sec): 100 Critical Vol./Cap. (X): 0.052

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.1

Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 0 0 0 1 0 0 1! 0 0 0 1 0 0 0 0 0 1 0

Volume Module:

Base Vol: 0 0 6 0 0 0 0 12 0 0 16 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 0 6 0 0 0 0 12 0 0 16 0

Added Vol: 0 0 0 33 0 13 24 0 0 0 0 27

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 0 6 33 0 13 24 12 0 0 16 27

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 0 6 33 0 13 24 12 0 0 16 27

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 6 33 0 13 24 12 0 0 16 27

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 0 0 6 33 0 13 24 12 0 0 16 27

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 1.00 0.72 0.00 0.28 0.67 0.33 0.00 0.00 0.37 0.63

Final Sat.: 0 0 1005 629 0 248 567 284 0 0 360 608

Capacity Analysis Module:

Vol/Sat: xxxx xxxx 0.01 0.05 xxxx 0.05 0.04 0.04 xxxx xxxx 0.04 0.04

Crit Moves: **** **** **** *

Delay/Veh: 0.0 0.0 6.5 7.3 0.0 7.3 7.4 7.4 0.0 0.0 6.8 6.8

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 0.0 6.5 7.3 0.0 7.3 7.4 7.4 0.0 0.0 6.8 6.8

LOS by Move: * * A A * A A A * * A A

ApproachDel: 6.5 7.3 7.4 6.8

Delay Adj: 1.00 1.00 1.00 1.00

ApprAdjDel: 6.5 7.3 7.4 6.8

LOS by Appr: A A A A

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Shannon / Albright

Average Delay (sec/veh): 0.8 Worst Case Level Of Service: A[8.8]

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Yield Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0

Volume Module:

Base Vol: 4 0 4 0 0 0 0 56 0 0 28 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 4 0 4 0 0 0 0 56 0 0 28 0

Added Vol: 0 0 0 0 0 0 0 0 0 0 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 4 0 4 0 0 0 0 56 0 0 28 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 4 0 4 0 0 0 0 56 0 0 28 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 4 0 4 0 0 0 0 56 0 0 28 0

Critical Gap Module:

Critical Gp: 6.4 xxxx 6.2 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

FollowUpTim: 3.5 xxxx 3.3 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Capacity Module:

Cnflct Vol: 84 xxxx 56 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Potent Cap.: 923 xxxx 1016 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Move Cap.: 923 xxxx 1016 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Volume/Cap: 0.00 xxxx 0.00 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Level Of Service Module:

Queue: xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Stopped Del:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

LOS by Move: * * * * * * * * * * * * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx 967 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

SharedQueue:xxxxx 0.0 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shrd StpDel:xxxxx 8.8 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shared LOS: * A * * * * * * * * * * *

ApproachDel: 8.8 xxxxxx xxxxxx xxxxxx

ApproachLOS: A * * *

**Background Conditions
PM Peak Hour**

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Westborough / Gellert

Cycle (sec): 120 Critical Vol./Cap. (X): 0.711

Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 42.1

Optimal Cycle: 82 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 10 10 10 10 10 10 10 40 40 10 40 40

Lanes: 1 0 1 0 1 1 1 0 1 1 0 3 0 1

Volume Module:

Base Vol: 49 54 180 403 57 199 214 779 14 293 1414 418

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 49 54 180 403 57 199 214 779 14 293 1414 418

Added Vol: 0 0 0 0 0 0 0 10 0 0 18 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 49 54 180 403 57 199 214 789 14 293 1432 418

User Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 57 63 208 467 66 230 248 914 16 339 1658 484

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 57 63 208 467 66 230 248 914 16 339 1658 484

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 57 63 208 467 66 230 248 914 16 339 1658 484

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.95 1.00 0.85 0.91 0.91 0.85 0.95 0.91 0.91 0.95 0.91 0.85

Lanes: 1.00 1.00 1.00 2.00 1.00 1.00 1.00 2.95 0.05 1.00 3.00 1.00

Final Sat.: 1805 1900 1615 3458 1729 1615 1805 5081 90 1805 5187 1615

Capacity Analysis Module:

Vol/Sat: 0.03 0.03 0.13 0.13 0.04 0.14 0.14 0.18 0.18 0.19 0.32 0.30

Crit Moves: **** **** ****

Green/Cycle: 0.16 0.16 0.16 0.18 0.18 0.18 0.16 0.33 0.33 0.23 0.40 0.40

Volume/Cap: 0.20 0.21 0.81 0.77 0.22 0.81 0.83 0.54 0.54 0.81 0.80 0.75

Uniform Del: 43.8 43.9 48.7 47.1 42.4 47.5 48.5 32.5 32.5 43.6 31.7 30.8

IncremntDel: 0.3 0.3 17.4 5.2 0.0 16.0 17.9 0.3 0.3 11.4 2.3 4.8

InitQueuDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Delay/Veh: 44.1 44.2 66.1 52.3 42.4 63.5 66.4 32.9 32.9 55.0 34.0 35.7

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 44.1 44.2 66.1 52.3 42.4 63.5 66.4 32.9 32.9 55.0 34.0 35.7

HCM2kAvg: 2 2 10 10 2 10 12 10 10 15 20 16

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 Evergreen / Sherwood

Cycle (sec): 100 Critical Vol./Cap. (X): 0.059

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.1

Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 0 0 0 1 0 0 1! 0 0 0 0 1! 0 0 0 0 1 0

Volume Module:

Base Vol: 0 0 4 0 0 0 0 12 8 0 8 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 0 4 0 0 0 0 12 8 0 8 0

Added Vol: 0 0 0 37 0 15 23 0 0 0 0 25

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 0 4 37 0 15 23 12 8 0 8 25

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 0 4 37 0 15 23 12 8 0 8 25

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 4 37 0 15 23 12 8 0 8 25

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 0 0 4 37 0 15 23 12 8 0 8 25

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 1.00 0.71 0.00 0.29 0.53 0.28 0.19 0.00 0.24 0.76

Final Sat.: 0 0 1006 626 0 254 471 246 164 0 238 745

Capacity Analysis Module:

Vol/Sat: xxxx xxxx 0.00 0.06 xxxx 0.06 0.05 0.05 0.05 xxxx 0.03 0.03

Crit Moves: **** **** **** **** ****

Delay/Veh: 0.0 0.0 6.5 7.3 0.0 7.3 7.2 7.2 7.2 0.0 6.7 6.7

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 0.0 6.5 7.3 0.0 7.3 7.2 7.2 7.2 0.0 6.7 6.7

LOS by Move: * * A A * A A A * A A

ApproachDel: 6.5 7.3 7.2 6.7

Delay Adj: 1.00 1.00 1.00 1.00

ApprAdjDel: 6.5 7.3 7.2 6.7

LOS by Appr: A A A A

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Shannon / Albright

Average Delay (sec/veh): 1.0 Worst Case Level Of Service: A[8.6]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Yield Sign	Stop Sign	Uncontrolled	Uncontrolled
Rights:	Include	Include	Include	Include
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 1 0 0	0 0 1 0 0

Volume Module:

Base Vol:	4 0 4	0 0 0	0 0 28	0 0 32	0
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	4 0 4	0 0 0	0 0 28	0 0 32	0
Added Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	4 0 4	0 0 0	0 0 28	0 0 32	0
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Volume:	4 0 4	0 0 0	0 0 28	0 0 32	0
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Final Vol.:	4 0 4	0 0 0	0 0 28	0 0 32	0

Critical Gap Module:

Critical Gp:	6.4 xxxx	6.2 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
FollowUpTim:	3.5 xxxx	3.3 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Capacity Module:

Cnflict Vol:	60 xxxx	28 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Potent Cap.:	952 xxxx	1053 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Move Cap.:	952 xxxx	1053 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx
Volume/Cap:	0.00 xxxx	0.00 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Level Of Service Module:

Queue:	xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx			
Stopped Del:	xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx			
LOS by Move:	* * * * * * * * * * * * * *			
Movement:	LT - LTR - RT			
Shared Cap.:	xxxx 1000 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx			
SharedQueue:	xxxxx 0.0 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx			
Shrd StpDel:	xxxxx 8.6 xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx			
Shared LOS:	* A * * * * * * * * * * * *			
ApproachDel:	8.6	xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	A	*	*	*

**Project Alternative Conditions
AM Peak Hour**

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Westborough / Gellert

 Cycle (sec): 120 Critical Vol./Cap. (X): 0.578
 Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 36.6
 Optimal Cycle: 82 Level Of Service: D

Approach:	North Bound			South Bound			East Bound			West Bound					
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Split Phase			Split Phase			Protected			Protected					
Rights:	Include			Include			Include			Include					
Min. Green:	10	10	10	10	10	10	10	40	40	10	40	40			
Lanes:	1	0	1	0	1	1	1	0	1	1	0	2	1	0	
Volume Module:															
Base Vol:	23	41	151	468	36	54	153	1167	11	82	659	159			
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Initial Bse:	23	41	151	468	36	54	153	1167	11	82	659	159			
Added Vol:	0	0	14	0	0	0	0	0	0	5	0	0			
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0			
Initial Fut:	23	41	165	468	36	54	153	1167	11	87	659	159			
User Adj:	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10	1.10			
PHF Adj:	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95	0.95			
PHF Volume:	27	47	191	542	42	63	177	1351	13	101	763	184			
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0			
Reduced Vol:	27	47	191	542	42	63	177	1351	13	101	763	184			
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Final Vol.:	27	47	191	542	42	63	177	1351	13	101	763	184			
Saturation Flow Module:															
Sat/Lane:	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900			
Adjustment:	0.95	1.00	0.85	0.91	0.91	0.85	0.95	0.91	0.91	0.95	0.91	0.85			
Lanes:	1.00	1.00	1.00	2.00	1.00	1.00	1.00	2.97	0.03	1.00	3.00	1.00			
Final Sat.:	1805	1900	1615	3451	1726	1615	1805	5133	48	1805	5187	1615			
Capacity Analysis Module:															
Vol/Sat:	0.01	0.02	0.12	0.16	0.02	0.04	0.10	0.26	0.26	0.06	0.15	0.11			
Crit Moves:	****	****		****			****			****					
Green/Cycle:	0.18	0.18	0.18	0.24	0.24	0.24	0.15	0.39	0.39	0.10	0.33	0.33			
Volume/Cap:	0.08	0.14	0.66	0.66	0.10	0.16	0.66	0.68	0.68	0.58	0.44	0.34			
Uniform Del:	41.0	41.4	45.8	41.3	35.7	36.2	48.2	30.7	30.7	51.9	31.3	30.1			
IncremntDel:	0.1	0.2	5.5	1.8	0.0	0.2	5.9	1.0	1.0	4.8	0.2	0.4			
InitQueuDel:	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
Delay/Veh:	41.1	41.6	51.3	43.1	35.7	36.4	54.1	31.7	31.7	56.7	31.4	30.5			
User DelAdj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00			
AdjDel/Veh:	41.1	41.6	51.3	43.1	35.7	36.4	54.1	31.7	31.7	56.7	31.4	30.5			
HCM2kAvg:	1	1	8	10	1	2	8	15	15	5	7	5			

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 Evergreen / Sherwood

Cycle (sec): 100 Critical Vol./Cap. (X): 0.028

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 7.0

Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 0 0 0 1 0 0 1! 0 0 0 1 0 0 0 0 0 1 0

Volume Module:

Base Vol: 0 0 6 0 0 0 0 12 0 0 16 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 0 6 0 0 0 0 12 0 0 16 0

Added Vol: 0 0 0 21 0 4 1 0 0 0 0 7

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 0 6 21 0 4 1 12 0 0 16 7

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 0 6 21 0 4 1 12 0 0 16 7

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 6 21 0 4 1 12 0 0 16 7

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 0 0 6 21 0 4 1 12 0 0 16 7

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 1.00 0.84 0.00 0.16 0.08 0.92 0.00 0.00 0.70 0.30

Final Sat.: 0 0 1048 741 0 141 69 825 0 0 656 287

Capacity Analysis Module:

Vol/Sat: xxxx xxxx 0.01 0.03 xxxx 0.03 0.01 0.01 xxxx xxxx 0.02 0.02

Crit Moves: **** **** **** ****

Delay/Veh: 0.0 0.0 6.4 7.2 0.0 7.2 7.1 7.1 0.0 0.0 6.9 6.9

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 0.0 6.4 7.2 0.0 7.2 7.1 7.1 0.0 0.0 6.9 6.9

LOS by Move: * * A A * A A A * * A A

ApproachDel: 6.4 7.2 7.1 6.9

Delay Adj: 1.00 1.00 1.00 1.00

ApprAdjDel: 6.4 7.2 7.1 6.9

LOS by Appr: A A A A

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Shannon / Albright

Average Delay (sec/veh): 2.1 Worst Case Level Of Service: A[8.7]

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Yield Sign Stop Sign Uncontrolled Uncontrolled

Rights: Include Include Include Include

Lanes: 0 0 1! 0 0 0 0 0 0 0 0 1 0 0 0 0 1 0 0 0

Volume Module:

Base Vol: 4 0 4 0 0 0 0 56 0 0 28 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 4 0 4 0 0 0 0 56 0 0 28 0

Added Vol: 0 0 14 0 0 0 0 0 0 5 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 4 0 18 0 0 0 0 56 0 5 28 0

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 4 0 18 0 0 0 0 56 0 5 28 0

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Final Vol.: 4 0 18 0 0 0 0 56 0 5 28 0

Critical Gap Module:

Critical Gp: 6.4 xxxx 6.2 xxxxx xxxx xxxxx xxxxx xxxx xxxx 4.1 xxxx xxxxx

FollowUpTim: 3.5 xxxx 3.3 xxxxx xxxx xxxxx xxxxx xxxx xxxx 2.2 xxxx xxxxx

Capacity Module:

Cnflct Vol: 94 xxxx 56 xxxx xxxx xxxxx xxxx xxxx xxxx 56 xxxx xxxxx

Potent Cap.: 911 xxxx 1016 xxxx xxxx xxxxx xxxx xxxx xxxx 1562 xxxx xxxxx

Move Cap.: 908 xxxx 1016 xxxx xxxx xxxxx xxxx xxxx xxxx 1562 xxxx xxxxx

Volume/Cap: 0.00 xxxx 0.02 xxxx xxxx xxxx xxxx xxxx 0.00 xxxx xxxx

Level Of Service Module:

Queue: xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 0.0 xxxx xxxxx

Stopped Del:xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx 7.3 xxxx xxxxx

LOS by Move: * * * * * * * * * * A * *

Movement: LT - LTR - RT LT - LTR - RT LT - LTR - RT LT - LTR - RT

Shared Cap.: xxxx 995 xxxxx xxxx xxxx xxxxx xxxx xxxx xxxx xxxx xxxx

SharedQueue:xxxxx 0.1 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shrd StpDel:xxxxx 8.7 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx

Shared LOS: * A * * * * * * * * A * *

ApproachDel: 8.7 xxxxxx xxxxxx xxxxxx xxxxxx

ApproachLOS: A * * * * *

**Project Alternative Conditions
PM Peak Hour**

Level Of Service Computation Report

2000 HCM Operations Method (Future Volume Alternative)

Intersection #11 Westborough / Gellert

Cycle (sec): 120 Critical Vol./Cap. (X): 0.728

Loss Time (sec): 12 (Y+R = 4 sec) Average Delay (sec/veh): 42.8

Optimal Cycle: 82 Level Of Service: D

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

-----|-----|-----|-----|-----|-----|-----|-----|

Control: Split Phase Split Phase Protected Protected

Rights: Include Include Include Include

Min. Green: 10 10 10 10 10 10 10 40 40 10 40 40

Lanes: 1 0 1 0 1 1 1 0 1 1 0 3 0 1

-----|-----|-----|-----|-----|-----|-----|-----|

Volume Module:

Base Vol: 49 54 180 403 57 199 214 779 14 293 1414 418

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 49 54 180 403 57 199 214 779 14 293 1414 418

Added Vol: 0 0 10 0 0 0 0 0 0 17 0 0

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 49 54 190 403 57 199 214 779 14 310 1414 418

User Adj: 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10 1.10

PHF Adj: 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95 0.95

PHF Volume: 57 63 220 467 66 230 248 902 16 359 1637 484

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 57 63 220 467 66 230 248 902 16 359 1637 484

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 57 63 220 467 66 230 248 902 16 359 1637 484

-----|-----|-----|-----|-----|-----|-----|-----|

Saturation Flow Module:

Sat/Lane: 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900 1900

Adjustment: 0.95 1.00 0.85 0.91 0.91 0.85 0.95 0.91 0.91 0.95 0.91 0.85

Lanes: 1.00 1.00 1.00 2.00 1.00 1.00 1.00 2.95 0.05 1.00 3.00 1.00

Final Sat.: 1805 1900 1615 3458 1729 1615 1805 5080 91 1805 5187 1615

-----|-----|-----|-----|-----|-----|-----|-----|

Capacity Analysis Module:

Vol/Sat: 0.03 0.03 0.14 0.13 0.04 0.14 0.14 0.18 0.18 0.20 0.32 0.30

Crit Moves: **** **** ****

Green/Cycle: 0.16 0.16 0.16 0.17 0.17 0.17 0.17 0.33 0.33 0.24 0.40 0.40

Volume/Cap: 0.19 0.20 0.84 0.80 0.23 0.84 0.83 0.53 0.53 0.84 0.78 0.74

Uniform Del: 43.5 43.6 48.8 47.9 43.1 48.3 48.4 32.4 32.4 43.7 31.2 30.5

IncremmtDel: 0.3 0.3 21.3 6.7 0.0 20.5 17.0 0.3 0.3 14.2 2.0 4.6

InitQueuDel: 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Delay/Veh: 43.9 43.9 70.2 54.5 43.1 68.8 65.4 32.7 32.7 57.9 33.2 35.1

User DelAdj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 43.9 43.9 70.2 54.5 43.1 68.8 65.4 32.7 32.7 57.9 33.2 35.1

HCM2kAvg: 2 2 10 11 2 11 12 9 9 16 19 16

Level Of Service Computation Report

2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #12 Evergreen / Sherwood

Cycle (sec): 100 Critical Vol./Cap. (X): 0.031

Loss Time (sec): 0 (Y+R = 4 sec) Average Delay (sec/veh): 6.8

Optimal Cycle: 0 Level Of Service: A

Approach: North Bound South Bound East Bound West Bound

Movement: L - T - R L - T - R L - T - R L - T - R

Control: Stop Sign Stop Sign Stop Sign Stop Sign

Rights: Include Include Include Include

Min. Green: 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0

Lanes: 0 0 0 0 1 0 0 1! 0 0 0 0 1! 0 0 0 0 1 0

Volume Module:

Base Vol: 0 0 4 0 0 0 0 12 8 0 8 0

Growth Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Initial Bse: 0 0 4 0 0 0 0 12 8 0 8 0

Added Vol: 0 0 0 14 0 2 4 0 0 0 0 24

PasserByVol: 0 0 0 0 0 0 0 0 0 0 0 0

Initial Fut: 0 0 4 14 0 2 4 12 8 0 8 24

User Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

PHF Volume: 0 0 4 14 0 2 4 12 8 0 8 24

Reduct Vol: 0 0 0 0 0 0 0 0 0 0 0 0

Reduced Vol: 0 0 4 14 0 2 4 12 8 0 8 24

PCE Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

MLF Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Final Vol.: 0 0 4 14 0 2 4 12 8 0 8 24

Saturation Flow Module:

Adjustment: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

Lanes: 0.00 0.00 1.00 0.87 0.00 0.13 0.17 0.50 0.33 0.00 0.25 0.75

Final Sat.: 0 0 1037 757 0 108 157 471 314 0 255 765

Capacity Analysis Module:

Vol/Sat: xxxx xxxx 0.00 0.02 xxxx 0.02 0.03 0.03 0.03 xxxx 0.03 0.03

Crit Moves: **** **** **** ****

Delay/Veh: 0.0 0.0 6.4 7.2 0.0 7.2 6.9 6.9 6.9 0.0 6.6 6.6

Delay Adj: 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00 1.00

AdjDel/Veh: 0.0 0.0 6.4 7.2 0.0 7.2 6.9 6.9 6.9 0.0 6.6 6.6

LOS by Move: * * A A * A A A * A A

ApproachDel: 6.4 7.2 6.9 6.6

Delay Adj: 1.00 1.00 1.00 1.00

ApprAdjDel: 6.4 7.2 6.9 6.6

LOS by Appr: A A A A

Level Of Service Computation Report

2000 HCM Unsignalized Method (Future Volume Alternative)

Intersection #13 Shannon / Albright

Average Delay (sec/veh): 2.9 Worst Case Level Of Service: A[8.6]

Approach:	North Bound	South Bound	East Bound	West Bound
Movement:	L - T - R	L - T - R	L - T - R	L - T - R
Control:	Yield Sign	Stop Sign	Uncontrolled	Uncontrolled
Rights:	Include	Include	Include	Include
Lanes:	0 0 1! 0 0	0 0 0 0 0	0 0 1 0 0	0 1 0 0 0

Volume Module:

Base Vol:	4 0 4	0 0 0	0 0 28	0 0 32	0
Growth Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
Initial Bse:	4 0 4	0 0 0	0 0 28	0 0 32	0
Added Vol:	0 0 10	0 0 0	0 0 0	0 0 17	0 0 0
PasserByVol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Initial Fut:	4 0 14	0 0 0	0 0 28	0 0 17	32 0
User Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Adj:	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00	1.00 1.00 1.00
PHF Volume:	4 0 14	0 0 0	0 0 28	0 0 17	32 0
Reduct Vol:	0 0 0	0 0 0	0 0 0	0 0 0	0 0 0
Final Vol.:	4 0 14	0 0 0	0 0 28	0 0 17	32 0

Critical Gap Module:

Critical Gp:	6.4 xxxx	6.2 xxxxx xxxx xxxx xxxx xxxx xxxx xxxx	4.1 xxxx xxxx
FollowUpTim:	3.5 xxxx	3.3 xxxxx xxxx xxxx xxxx xxxx xxxx	2.2 xxxx xxxx

Capacity Module:

Cnflict Vol:	94 xxxx	28 xxxx xxxx xxxx xxxx xxxx xxxx	28 xxxx xxxx
Potent Cap.:	911 xxxx	1053 xxxx xxxx xxxx xxxx xxxx xxxx	1599 xxxx xxxx
Move Cap.:	903 xxxx	1053 xxxx xxxx xxxx xxxx xxxx xxxx	1599 xxxx xxxx
Volume/Cap:	0.00 xxxx	0.01 xxxx xxxx xxxx xxxx xxxx xxxx	0.01 xxxx xxxx

Level Of Service Module:

Queue:	xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	0.0 xxxx xxxx		
Stopped Del:	xxxxx xxxx xxxx xxxx xxxx xxxx xxxx xxxx	7.3 xxxx xxxx		
LOS by Move:	* * * * * * * * * *	A * *		
Movement:	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT	LT - LTR - RT
Shared Cap.:	xxxx 1016 xxxx xxxx xxxx xxxx xxxx xxxx	xxxx xxxx xxxx		
SharedQueue:	xxxxx 0.1 xxxx xxxx xxxx xxxx xxxx xxxx	0.0 xxxx xxxx		
Shrd StpDel:	xxxxx 8.6 xxxx xxxx xxxx xxxx xxxx xxxx	7.3 xxxx xxxx		
Shared LOS:	* A * * * * * * * *	A * *		
ApproachDel:	8.6	xxxxxx	xxxxxx	xxxxxx
ApproachLOS:	A	*	*	*